ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Items	Symbol	Absolute Maximum Rating			Unit
		R	G	B	
Forward Current Note 1	I_F	50	35	35	mA
Peak Forward Current Note 2	I_{FP}	200	100	100	mA
Reverse Voltage	V_R	5	5	5	V
Power Dissipation	P_D	130	140	140	mW
Operation Temperature	T_{opr}	-40 ~ +100			°C
Storage Temperature	T_{stg}	-40 ~ +100			°C
Junction Temperature	T_J	110	110	110	°C
Junction/ambient 1 chip on	R_{THJA}	450	400	450	°C/W
Junction/ambient 3 chips on	R_{THJA}	650	580	680	°C/W
Junction/solder point 1 chip on	R_{THJS}	230	230	200	°C/W
Junction/solder point 3 chips on	R_{THJS}	230	230	200	°C/W
Electrostatic Discharge Classification(MIL-STD-883E)	ESD	1000 V			

Note: 1.Single-color light.
2.Pulse width ≤0.1 msec, duty ≤1/10.

TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS (T_A = 25°C)

Characteristics	Condition	Symbol	Values			Unit
			R	G	B	
Dominant Wavelength	I_F = 20 mA	λ_{DOM}	619~624	520~540	460~480	nm
Spectral bandwidth at 50% I_{REL} max	I_F = 20 mA	Δ λ	24	38	28	nm
Forward Voltage	I_F = 20 mA	$V_{F(avg)}$	2.0	3.2	3.2	V
		$V_{F(max)}$	2.6	4.0	4.0	V
Luminous Intensity	I_F = 20 mA	$I_{V(min)}$	450	900	224	mcd
		$I_{V(avg)}$	700	1400	400	mcd
Reverse Current (max)	V_R = 5 V	I_R	10	10	10	μA

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INTENSITY BIN LIMIT (I_F = 20 mA)

Red

Bin Code	Min.(mcd)	Max.(mcd)
J	450	560
km	505	635
K	560	710
np	635	805
M	710	900
qr	805	1010
N	900	1120

Green

Bin Code	Min.(mcd)	Max.(mcd)
N	900	1120
st	1010	1260
P	1120	1400
vw	1260	1600
Q	1400	1800
xy	1600	2020
R	1800	2240

Blue

Bin Code	Min.(mcd)	Max.(mcd)
F	224	280
de	252	318
G	280	355
fg	318	403
H	355	450
hj	403	505
J	450	560

Tolerance of measurement of luminous intensity is ±10%.

COLOR BIN LIMIT (I_F = 20 mA)

Red

Bin Code	Min.(nm)	Max.(nm)
RB	619	624

Green

Bin Code	Min.(nm)	Max.(nm)
G7	520	525
G23	522.5	527.5
G8	525	530
G45	527.5	532.5
G9	530	535
G67	532.5	537.5
Ga	535	540

Blue

Bin Code	Min.(nm)	Max.(nm)
B3	460	465
B23	462.5	467.5
B4	465	470
B45	467.5	472.5
B5	470	475
B67	472.5	477.5
B6	475	480

Tolerance of measurement of dominant wavelength is ±1 nm.

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ORDER CODE TABLE*

Kit Number	Color	Luminous Intensity (mcd)		Dominant Wavelength (nm)				Package
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)	
CLX6A-FKB-CJNNRFJBB7a363	R	450	1120	RB	619	RB	624	Reel
	G	900	2240	G7	520	Ga	540	Reel
	B	224	560	B3	460	B6	480	Reel
CLX6A-FKB-CJ1N1F1BB7D3D3	R	Any 1 intensity bin from J(450)-M(900)		RB	619	RB	624	Reel
	G	Any 1 intensity bin from N(900)-Q(1800)		Any 1 hue bin from G7(520)-Ga(540)				Reel
	B	Any 1 intensity bin from F(224)-H(450)		Any 1 hue bin from B3(460)-B6(480)				Reel
CLX6A-FKB-CK1P1G1BB7D3D3	R	Any 1 intensity bin from K(560)-N(1120)		RB	619	RB	624	Reel
	G	Any 1 intensity bin from P(1120)-R(2240)		Any 1 hue bin from G7(520)-Ga(540)				Reel
	B	Any 1 intensity bin from G(280)-J(560)		Any 1 hue bin from B3(460)-B6(480)				Reel
CLX6A-FKB-CK1P1G1BB7C4S3	R	Any 1 intensity bin from K(560)-M(900)		RB	619	RB	624	Reel
	G	Any 1 intensity bin from P(1120)-Q(1800)		Any 1 hue bin from G7(520)-G9(535)				Reel
	B	Any 1 intensity bin from G(280)-H(450)		Any 1 hue bin from B4(465)-B5(475)				Reel

Notes:
1. The above kit numbers represent the order codes which include multiple intensity-bin and color-bin codes.Only one intensity-bin code and one color-bin code will be shipped on each reel. Single intensity-bin code and single color-bin code will be orderable in certain quantities. For example, any 1 intensity bin from J - N means only 1 intensity bin (J or km or K or np or M or qr or N) will be shipped by Cree. For example, any 1 color bin from G7 - Ga means only 1 color bin (G7 or G23 or G8 or G45 or G9 or G67 or Ga) will be shipped by Cree.
2. Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
3. Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

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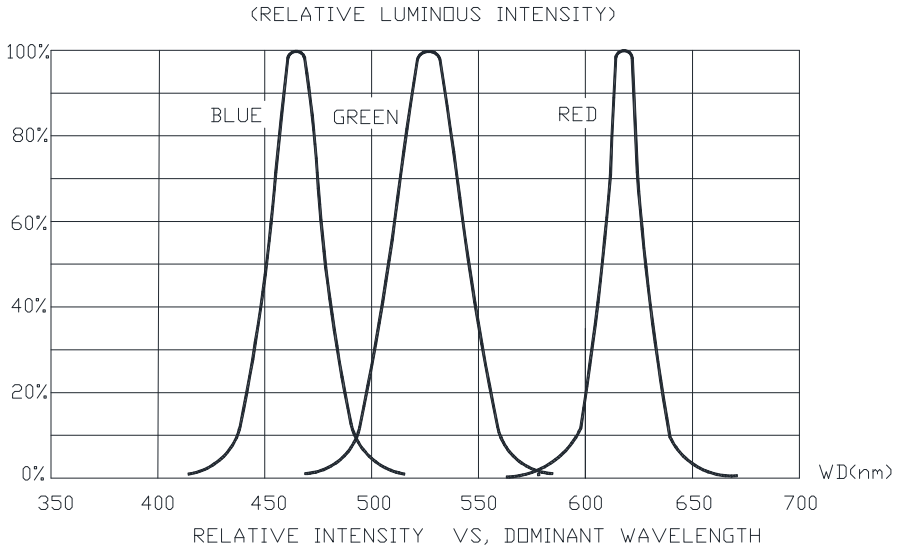
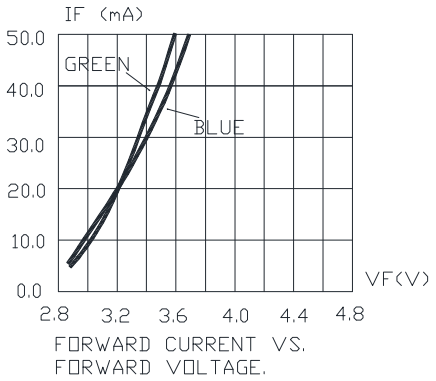
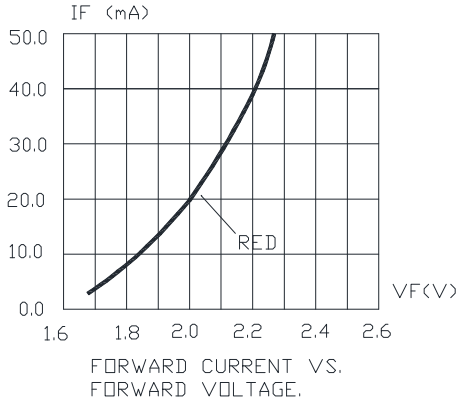
GRAPHS



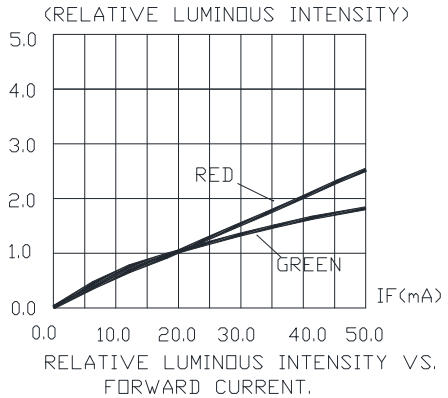
RELATIVE INTENSITY VS, DOMINANT WAVELENGTH



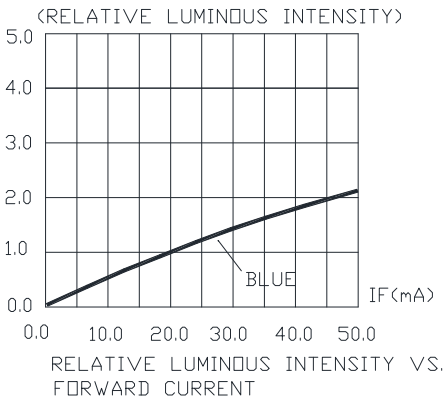
FORWARD CURRENT VS.
FORWARD VOLTAGE.



FORWARD CURRENT VS.
FORWARD VOLTAGE.



RELATIVE LUMINOUS INTENSITY VS.
FORWARD CURRENT.



RELATIVE LUMINOUS INTENSITY VS.
FORWARD CURRENT

The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

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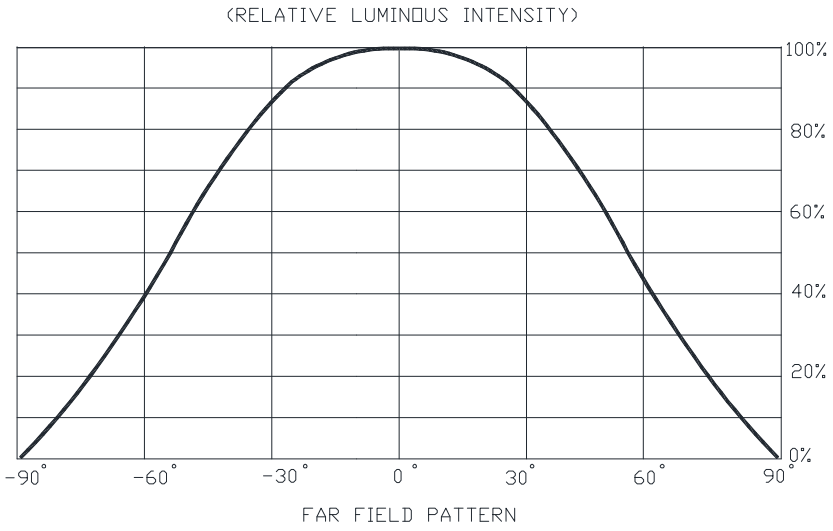
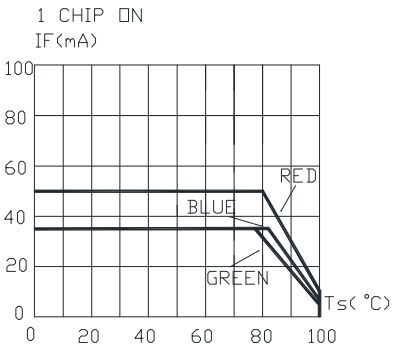
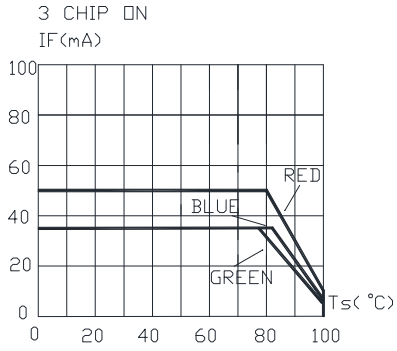
GRAPHS



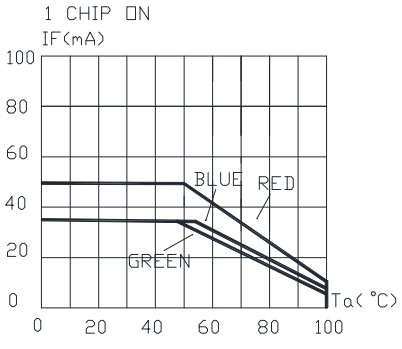
FAR FIELD PATTERN



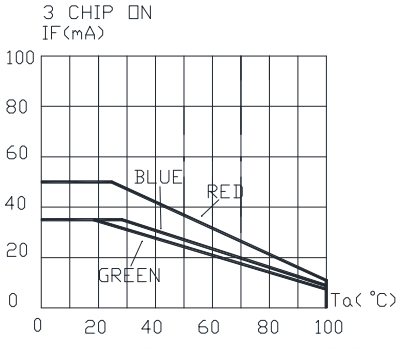
MAXIMUM FORWARD DC CURRENT
VS, SOLDER POINT TEMPERATURE.



MAXIMUM FORWARD DC CURRENT
VS, SOLDER POINT TEMPERATURE.



MAXIMUM FORWARD DC CURRENT
VS, AMBIENT TEMPERATURE.



MAXIMUM FORWARD DC CURRENT
VS, AMBIENT TEMPERATURE.

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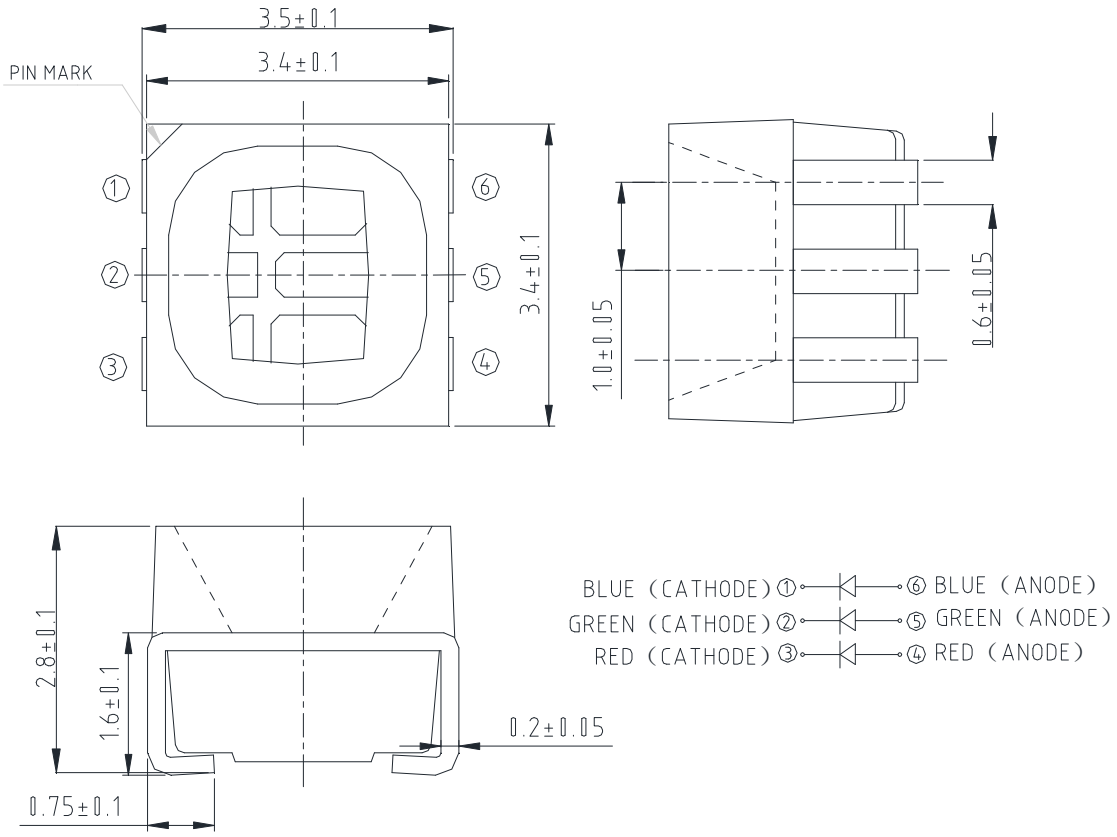
MECHANICAL DIMENSIONS

All dimensions are in mm.



NOTES

RoHS Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

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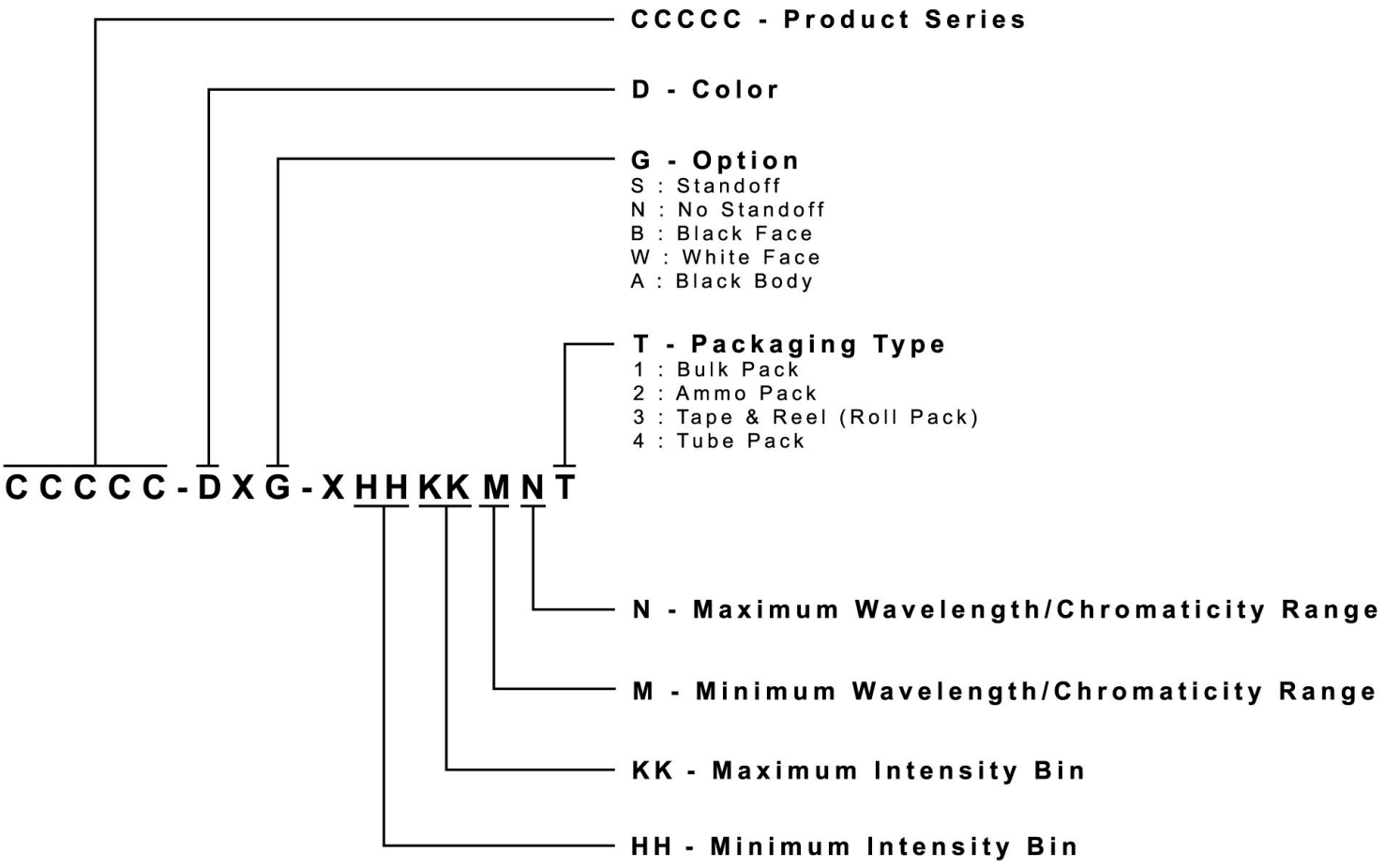
KIT NUMBER SYSTEM

Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness. Sorted LEDs are packaged for shipping in various convenient options. Please refer to the "Cree LED Lamp Packaging Standard" document for more information about shipping and packaging options.

Cree LEDs are sold by order codes in combinations of bins called kits. Order codes are configured in the following manner:



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RELIABILITY

Tests and Results

Test	Applicable Standards	Test Condition	Note	Number of Damaged
Temperature Cycle	JEITA ED-4701 100 105	-40°C~25°C~100°C~25°C 30 mins, 5 mins, 30 mins, 5 mins	100 cycles	0/50
Thermal Shock	MIL-STD-202G	-40°C~100°C 30 mins, 30 mins	100 cycles	0/50
Moisture Resistance	JEITA ED-4701 200 203	25°C~65°C~ 90%RH 24hrs/1cycle	10 cycles	0/50
High Temperature Storage	JEITA ED-4701 200 201	T_A=100°C	500 hrs	0/50
Temperature Humidity Storage	JEITA ED-4701 100 103	T_A=60°C RH=90%	500 hrs	0/50
Low Temperature Storage	JEITA ED-4701 200 202	T_A=-40°C	500 hrs	0/50
Water Proof Test*	IEC 60529:2001	IP X8 Immersing in 1m water	24hrs	0/50
High Temperature Life Test	-	T_A=85°C I_F=15 mA	1000 hrs	0/50
Life Test	-	T_A=25°C IF: R=30mA G=35mA B=20mA	1000 hrs	0/50
High Humidity Heat Life Test	-	60°C RH=90% I_F=15 mA	500 hrs	0/50
Low Temperature Life Test	-	Ta=-40°C IF: R=30mA G=35mA B=20mA	500 hrs	0/50
Resistance to Soldering Heat(Reflow Soldering)	JEITA ED-4701 300 301	T_{sol}=235°C,10sec (Pre treatment 30°C,70%,168hrs)	2 times	0/50
Vibration-variable Frequency	MIL-STE-883 Method 2007	20G min, 20 to 2000Hz, 4cycles, 4mins, Each x,y,z		0/50
Electrostatic Discharge Test	AEC(Q101-001)	Human body model 1000 V (Forward and reverse current conduct electricity each 1time)		0/50

Water proof test*: The test is conducted on component level. It is strongly recommended the customers test the products for their application

Failure Criteria

Item	Symbol	Test Condition	Criteria for Judgment	
			Min.	Max.
Forward Voltage	V_F	I_F = 20 mA	–	Initial Data x 1.1
Reverse Current	I_R	V_R = 5 V	-	10 μA
Luminous Flux/Intensity	Φ_V	I_F = 20 mA	Initial Data x 0.7	-
Resistance to Soldering Heat	-	I_F = 20 mA	No dead lamps and visual damage	
Vibration-variable Frequency	-	I_F = 20 mA	No dead lamps and visual damage	

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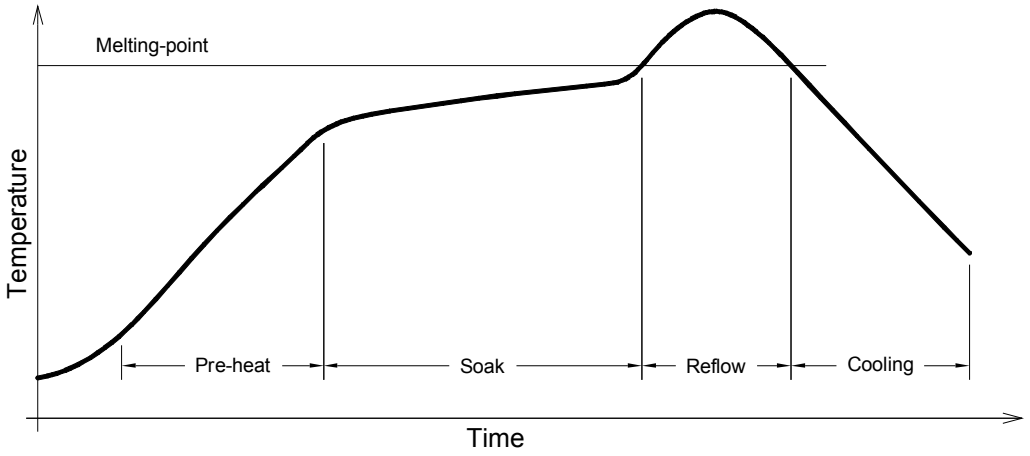
REFLOW SOLDERING

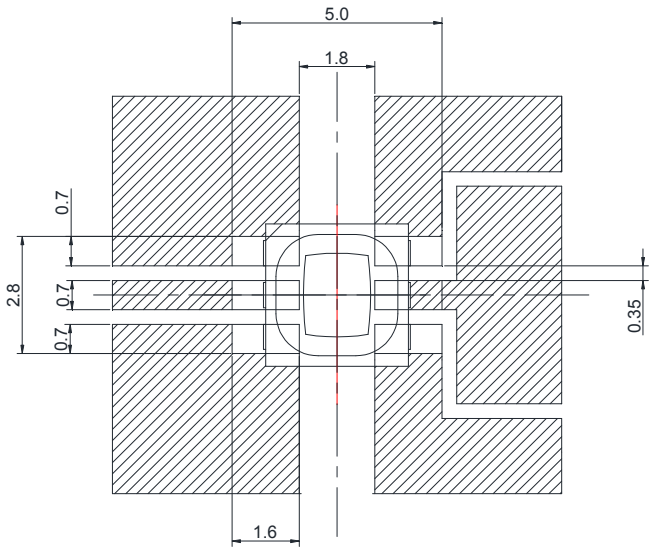
- The CLX6A-FKB is rated as a MSL 5a product.
- The recommended floor life out of bag is 24hrs.
- The best practices suggestion is to bake 24-hour/80ºC before use.
- The temperature profile is as below.



Use only with CLX6A-FKB

Solder
Average ramp-up rate = 4ºC/s max
Preheat temperature = 150ºC ~200ºC
Preheat time = 120s max
Ramp-down rate = 6ºC/s max
Peak temperature = 235ºC max
Time within 5ºC of actual Peak Temperature = 10s max
Duration above 217ºC is 45s max

Soldering pad:



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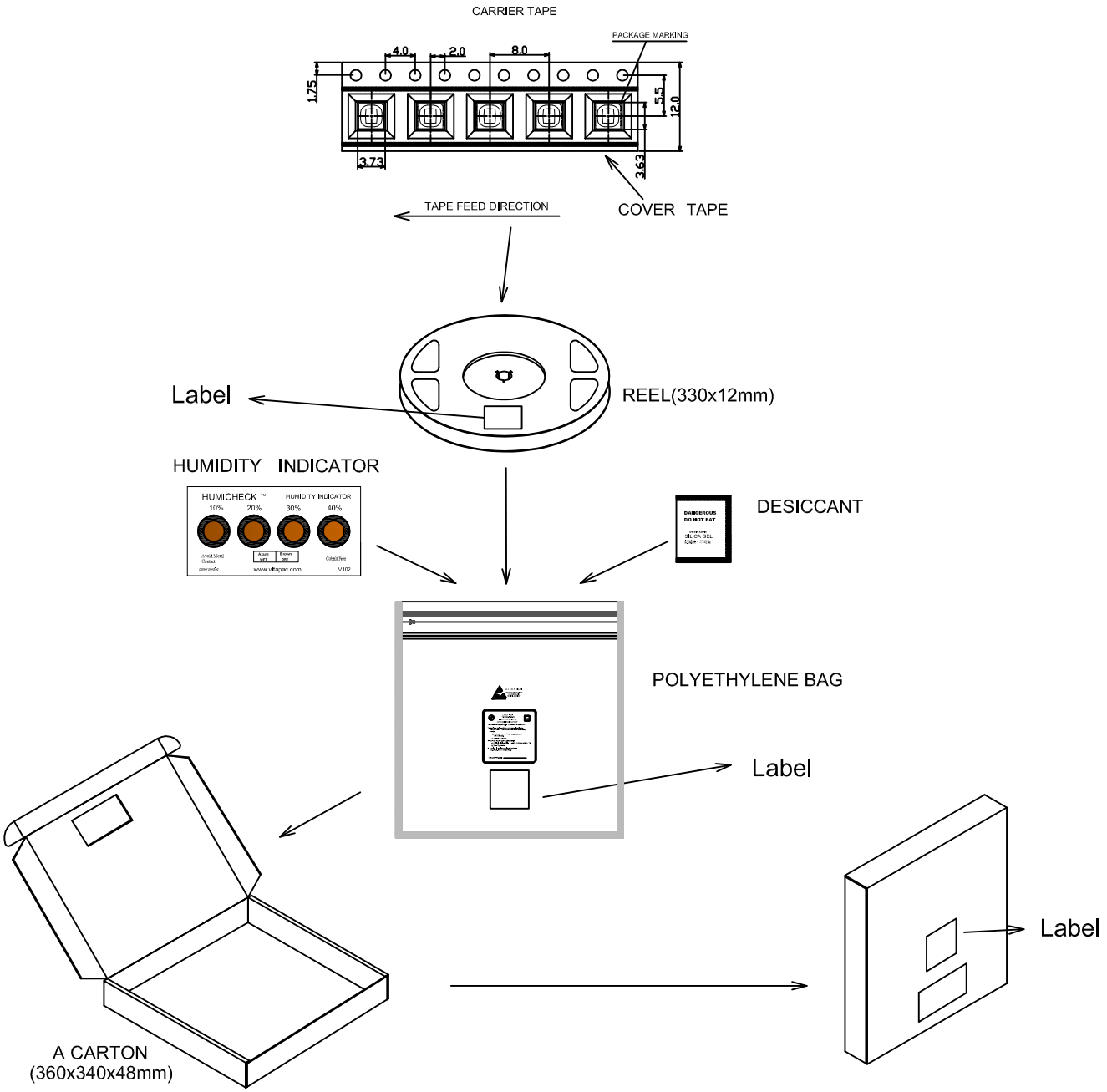
PACKAGING

- The boxes are not water resistant and they must be kept away from water and moisture.
- The LEDs are packed in cardboard boxes after packaging in normal or anti-electrostatic bags.
- Cardboard boxes will be used to protect the LEDs from mechanical shocks during transportation.
- The reel pack is applied in SMD LED.
- Max 2800 pcs per reel.



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Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Cree LED:

CLX6A-FKB-CJ1N1F1BB7R3R3 CLX6A-FKB-CJNNRFJBB7a363 CLX6A-FKB-CK1P1G1BB7S4T3 CLX6A-FKB-CK1P1G1BB7D3D3 CLX6A-FKB-CK1P1G1BB7C4S3 CLX6A-FKB-CJ1N1F1BB7D3D3